REMARKS

Claims 1-24 remain in this application. Claims 1 and 10 have been amended. Claims 1, 10 and 16 are independent claims.

A. Allowable Subject Matter

Applicants note with appreciation that the Office action dated September 16, 2004 indicated that claims 16-24 were allowed. Moreover, claims 2-5, 14 and 15 were deemed to contain subject matter which is allowable over the prior art. The claims were merely objected to as being dependent upon a rejected base claim, but allowable if rewritten in independent form to include all the features of the base claim and any intervening claims.

B. Basis for Rejection of Claims

Claims 1 and 7-12 were rejected under 35 U.S.C. 102(b) as being anticipated by Yin et al. (hereinafter Yin). Claims 6 and 13 were rejected under 35 U.S.C. 103(a) as being unpatentable over Yin in view of Petro et al. (hereinafter Petro). In response to the rejection, Applicants have amended claims 1 and 10 to further distinguish the invention from the prior art. The amended claims describe a method and system which provide an adjustment that is specific to a scaling representative of a differential between the bulk flow rate of a fluid and the propagation rate of a heat tracer in the fluid. That is, the propagation rate of the heat tracer is not directly converted into the bulk flow rate. Support for the amendments may be found in paragraph [0047] on page 14 of the application, as well as in other portions of the application, as will be described in detail within the section that follows.

C. Patentability of Claims 1 and 10

The Office action alleges that claim 1 of Applicants' invention is anticipated by Yin. Yin (column 7, lines 51-63) teaches that when a heat tracer reaches the interrogation region a change in refractive index can be detected. The output of a detector is processed by a pre-amplifier and a lock-in amplifier. A processor receives signals from the lock-in amplifier and

a heater control device, so that it is able to identify the transit time of the heat tracer from the heater to the interrogation region. The distance the heat tracer travels is fixed, so that the flow rate can be determined using conventional techniques. This teaches that there is a direct correlation of the fluid flow rate and the heat tracer transit time. In all variations of Yin, the determination of a flow rate follows the same method of identifying the transit time of the heat tracer over a fixed distance the heat tracer travels, so that the flow rate can be determined.

Referring to Fig. 8 of Yin, wherein a number of interrogation regions are taught, the same flow rate determination approach is utilized. In Fig. 8 and column 11, lines 6-24, the utilization of upstream and downstream interrogation regions is taught as a method to take advantage of the thermal dilution principle. In this method, detectors are placed at the upstream and downstream interrogation regions equidistant from the heat generator. When the heat tracer is introduced, thermal energy will flow both upstream and downstream. The flow rate of the upstream radiation is dependent upon the counterflow of fluid in the passageway. A processor is configured to calculate the fluid flow rate. Even though the effects of the counterflow fluid rate must be considered, the method for determining the flow rate is that of heat tracer transit time over a fixed distance and that there is a direct correlation of the counter fluid flow rate to the heat tracer transit time. There is no teaching in Yin that the fluid flow rate is something other than a direct correlation of heat tracer transit time. Moreover, there is no teaching in Yin of a method of determining the fluid flow rate in which there is not a direct correlation to heat tracer transit time.

Applicants have amended claim 1 to describe a method in which said scaling is representative of a flow rate differential between said bulk flow rate and said propagation rate of said heater tracer. As described in paragraph [0038] of the specification, there are expected velocities of flow rate and actual velocities of flow rate. It has been determined that there is a linear scaling between the propagation rate of a heat tracer and a bulk fluid flow rate. The cause of the lag in the propagation rate of a heat tracer is represented in Fig. 8. The figure depicts a thermally generated heat tracer 74 within a fluid 76 exchanging thermal energy with the walls 78 and 80 that form the microfluidic passageway 12. As a consequence of the exchange, the walls will include heated regions 84 and 86. While the bulk fluid flow rate is not affected, the flow rate of the heat tracer 74 will be reduced by the thermal

exchange. The lag is indicative of the differential between the bulk flow rate of a fluid and the propagation rate of a heat tracer.

Claim 10 has been amended in a similar manner as claim 1. Specifically, said pre-identified scaling is representative of a differential in correlating said tracer propagation rates to said bulk fluid rates. Remarks made herein regarding the amendment to claim 1 are applied in support for the amendment to claim 10. Applicants respectfully assert that a material difference exists between amended independent claims 1 and 10 and the cited prior art. Reconsideration for patentability of the rejected independent claims and their dependent claims is respectfully requested.

Claim 10 (lines 3 and 7) was further amended wherein "microfluidic channel" now reads "microfluidic passageway." This amendment was made to incorporate language consistent with language elsewhere in the claim and its dependent claims.

Applicants respectfully request reconsideration of the claims in view of the amendments and remarks made herein. A notice of allowance is earnestly solicited. In the case that any issues regarding this application can be resolved expeditiously via a telephone conversation, Applicants invite the Examiner to call Terry McHugh at (650) 969-8458.

Respectfully submitted,

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